

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 152/MP/2023**

**Coram:**

**Shri Jishnu Barua, Chairperson  
Shri I.S. Jha, Member  
Shri Arun Goyal, Member  
Shri P.K. Singh, Member**

**Date of Order: 26<sup>th</sup> May, 2023**

**In the matter of**

Petition seeking permission to continue interchange of infirm power including drawal of start-up power from the Grid as per Deviation Settlement Mechanism (DSM) beyond 30.6.2023, till the first synchronization of RAPP-7 or 30.6.2024 whichever is earlier.

**And**

**In the matter of**

Nuclear Power Corporation of India Limited (NPCIL),  
Nabhikiya Urja Bhavan/ Vikram Sarabhai Bhavan,  
Anushaktinagar,  
Mumbai, Maharashtra – 400094

**...Petitioner**

**Vs.**

Northern Regional Load Dispatch Centre,  
18-A, Shaheed Jeet Singh Sansanwal Marg,  
Katwaria Sarai,  
New Delhi- 110016

**...Respondent**

**ORDER**

This Petition has been filed by the Petitioner, Nuclear Power Corporation of India Limiter under Clause (7) of Regulation 8 of the Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium term Open access in inter-State transmission and related matters) Regulations, 2009 (hereinafter referred to as “the Connectivity Regulations”) with the following prayers:

*“(a) Permit drawal of start-up power from the grid under Deviation Settlement Mechanism (DSM) for RAPP-7 commissioning till synchronization of RAPP-7 or 30.6.2024, whichever is earlier.*

*(b) Pass such order(s) as deemed fit by the Commission.”*

2. Rajasthan Atomic Power Project 7 and Project 8 of the Petitioner are located at Rawatbhata, Chittorgarh district in the State of Rajasthan and are being implemented in two stages consisting unit of 700 MW each. The project is an indigenous 700 MW Pressurised Heavy Water Reactor (PHWR). Rajasthan Atomic Power Project 7 (in short 'RAPP-7') started drawing start-up power from 17.3.2020, the permission for which had expired on 16.6.2021.

3. The Commission in its order dated 22.4.2022 in Petition No. 112/MP/2023 had allowed the start-up power to be drawn from the grid up to 30.6.2023 for synchronization of RAPP-7. However, as stated by the Petitioner, it could not be synchronized yet due to the following reasons:

(a) From 2020 to 2022, Covid-19 pandemic had a severe impact on execution of the Project. Many restrictions were imposed on employees and the contractors at the workplace. This has caused delay in the construction and commissioning activities. All attempts were made to fast-track the project commissioning.

(b) Owing to the Covid-19 pandemic, the degraded financial condition of vendors including EPC Contractors induced stress which led to delay in getting raw material for manufacture, and subsequent non-realization of revised target date(s) for commissioning of the unit.

(c) Being a 700 MW PHWR, there is stringent requirement of quality assurance on the design, selection, qualification, Operation and Maintenance of critical equipment e.g. reactor components, steam generators, and pressurizer, etc. Therefore, manufacturing of these critical equipment and their pre-service inspection have added to the delay in supply of these equipment. Further, there are limited qualified vendors in India for manufacturing of nuclear grade reactor equipment and components.

(d) The Petitioner has developed new technology e.g. interleaving of feeders, primary containment liner, containment spray system, passive decay heat removal system and partial boiling in the primary heat transport system, to enhance the safety and efficiency of nuclear power plants. All these new

technology developments are reviewed by independent regulators and their efficacy has to be proved before erection, commissioning and implementation. This has increased the project completion time.

4. The Petitioner has submitted the current status of works of the project as under:

(a) 400 kV switchyard has been charged and all 400 kV transmission lines are in service. Start-up transformer (220/6.6 kV) is in service and station auxiliary electrical system buses have been commissioned. Generator transformer-unit transformer are commissioned and drawal of startup power supply from this route is planned.

(b) Major equipment such as moderator pumps and their heat exchangers, primary coolant pumps, primary pressurizing pumps, fueling machine supply pumps, steam generators, emergency core cooling pumps, passive decay heat removal, boiler feed water pumps, auxiliary feed water pumps, condenser storage tank, air compressors and chillers, etc. have been installed.

(c) All panels of Control Centre Instrumentation Package (CCIP) have been erected and commissioning of most of the panels has been done. Important control systems such as Reactor Process Control & Monitoring System (RPCMS) along with auxiliary system panels are commissioned and are in service. Support systems such as Fire Alarm System & Fire Water Suppression System are also commissioned.

(d) Integrated Leak Rate Test of Reactor Building containment of RAPP-7, a major mile stone, has been done successfully in November, 2022.

(e) Primary Heat Transport (PHT) hot conditioning, the last project milestone before loading nuclear fuel & achieving reactor criticality, is scheduled in September, 2023. PHT system primary pressurizing pumps load testing has been done in April 2023. The same is a prerequisite for PHT hot conditioning. Criticality is the process of commencement of sustained fission chain reaction in the nuclear reactor for generating power in a controlled way. This is achieved by the removal of neutron absorbing chemicals (Gadolinium & Boron) and fine adjustment of neutron absorbing rods in a safe & controlled manner.

(f) Commissioning of Secondary Cycle Systems (Turbine generator side systems) is also in an advanced stage as per schedule. Major equipment such as condenser extraction pumps, seal oil pumps, lube oils pumps have been commissioned. TG set lube oil flushing is in progress and the same shall be completed by May, 2023. Commissioning of Turbine and Generator Auxiliary System is expected to be completed by September 2023 & TG set shall be put on barring gear.

(g) Spent fuel bay has been commissioned and the commissioning of nuclear fueling system activities is in an advanced stage. Nuclear fuel loading in reactor, heavy water addition in PHT & Bulk addition of heavy water in moderator system are scheduled for completion by November, 2023.

(h) After completion of above commissioning activities and obtaining the regulatory clearance from the Atomic Energy Regulatory Board (AERB), the reactor criticality is planned in December, 2023.

(i) Subsequent to reactor criticality, low power physics experiments are planned for completion by the end of January, 2024.

(j) Post commissioning of secondary cycle system and reactor low power physics experiments, the first synchronization of RAPP-7 is expected by February 2024. All attempts are being made to advance the synchronization date.

5. The Petitioner has submitted that due to reasons beyond its control, it could not synchronize RAPP-7. The Petitioner has requested permission be granted for the drawl of start-up power from the grid beyond 30.6.2023 till synchronization of RAPP-7 or 30.6.2024, whichever is earlier.

6. The Petition is admitted by circulation.

7. We have considered the submissions of the Petitioner. The fourth and fifth provisos to Regulation 8(7) of the Connectivity Regulations provide as under:

*“Provided that the Commission may in exceptional circumstances, allow extension of the period for inter-change of power beyond the period as prescribed in this clause, on an application made by the generating station at least two months in advance of completion of the prescribed period:*

*Provided further that the concerned Regional Load Despatch Centre while granting such permission shall keep the grid security in view.”*

8. The Petitioner has submitted that 700 MW PHWR being a new system, structure and components are being incorporated for establishing robustness in design, erection and operation based upon regulatory recommendations. The Petitioner has submitted that due to the Covid-19 pandemic, delays in the manufacturing of critical equipment, etc., RAPP-7 could not be synchronized. Accordingly, the

Petitioner has sought permission for the drawl of start-up power from the grid till synchronization or 30.6.2024, whichever is earlier.

9. We are of the view that the non-availability of start-up power would hamper the progress of commissioning activities and result in a further delay in synchronisation of RAPP-7. Accordingly, in the peculiar facts and circumstances, by way of exceptional case, we hereby allow the extension of time for drawl of start-up power from the grid, as sought for, till the synchronization of RAPP-7 or 30.6.2024, whichever is earlier. We expect the Petitioner to make all efforts to ensure the synchronization of RAPP-7 of the project by this date.

10. With the above, the Petition No. 152/MP/2023 is disposed of.

**Sd/-  
(P.K.Singh)  
Member**

**sd/-  
(Arun Goyal)  
Member**

**sd/-  
(I.S.Jha)  
Member**

**sd/-  
(Jishnu Barua)  
Chairperson**